

Bull. Natn. Sci. Mus., Ser. A (Zool.), 2 (3), September 22, 1976

Systematic Study of Japanese Epitoniidae (III)

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In this third report, the writers are going to deal with new species of the genera *Epitonium*, *Compressiscala* (nov.), *Foraceiscala*, *Fragilopalia*, *Pupiscala*, and *Graciliscala*.

The writers wish to express their sincere thanks to Messrs. Torao YAMAMOTO, Yasuo KOYAMA, Ryosuke KAWAMURA, Syoichiro HAYASHI, Shin'ichiro OKAMURA, Kinya MAZE, Hiroshi OHGAITO and Ken OHSUGA who brought these specimens for the writers' disposal.

Epitonium syoichiroi sp. nov.

(Fig. 1)

Shell rather small for the genus, solid, pyramidally ovate attenuating to the small apex. Spire rather highly elevated and with 9 whorls, of which two embryonic whorls are snowy white, smooth and polished, usually missing in the adult specimens. Seven teleoconch whorls glassy white with light brown blotches between longitudinal costae of 7-8 in number on each whorl, and strongly convex and unattached other than by the lamellate costae which are slightly winged at the shoulder. Body whorl soluted from the penultimate whorl near the aperture. Aperture circular, continuous, thickened and reflexed as the last costa. Umbilicus deeply and narrowly opened.

Operculum circular, rather thick, black and paucispiral. Nucleus placed sub-centrally.

Height 16.6 mm and breadth 9.7 mm (figured holotype specimen preserved in the National Science Museum, NSMT-Mo. 52443).

Height 17.8 mm and breadth 10.6 mm (paratype specimen, NSMT-Mo 52444).

Type-locality. Enshu-Nada, off Atsumi Peninsula, Honshu, at about 150 m deep.

Distribution. Off Wakayama Pref. Honshu and Enshunada.

Remarks. This new species is closely related to *Epitonium kandai* AZUMA, 1961, and *E. tokyoense* KURODA, 1930, in general features, but is easily recognized by being smaller and taller than these two and by the solute body whorl.

Compressiscala gen. nov.

Type-species: *Compressiscala japonica* sp. nov.

Shell elongate, turreted, solid, light yellowish ashy white. Spire with 13 whorls excepting the missing protoconch whorls, slightly bent forwards at the earlier whorls from the frontal view. Each whorl with about 12 axial costae crossing by densely set weak spiral threads. Costae on lower whorl continue to those of upper whorl. Suture distinctly constricted. Last three to six whorls with a strong varix on their right side instead of costa giving the ventrally compressed appearance from the frontal view. Body whorl rather small, about one-third the shell height and with a strongly margined cord on the base as the lower ends of costae form rather flat basal disc. Aperture circular continuous by the parietal callus. Outer margin roundly curved, expanded and duplicated by the last varix.

Operculum small, circular, thin, golden brown, and multispiral.

Remarks. *Gregorioiscala* COSSMANN, 1912, a fossil genus of Italian Miocene, is somewhat related to this new genus, but has the reticulated sculpture on the surface and no strong varices on the whorls.

Compressiscala japonica sp. nov.

(Fig. 6)

Diagnosed as in the genus.

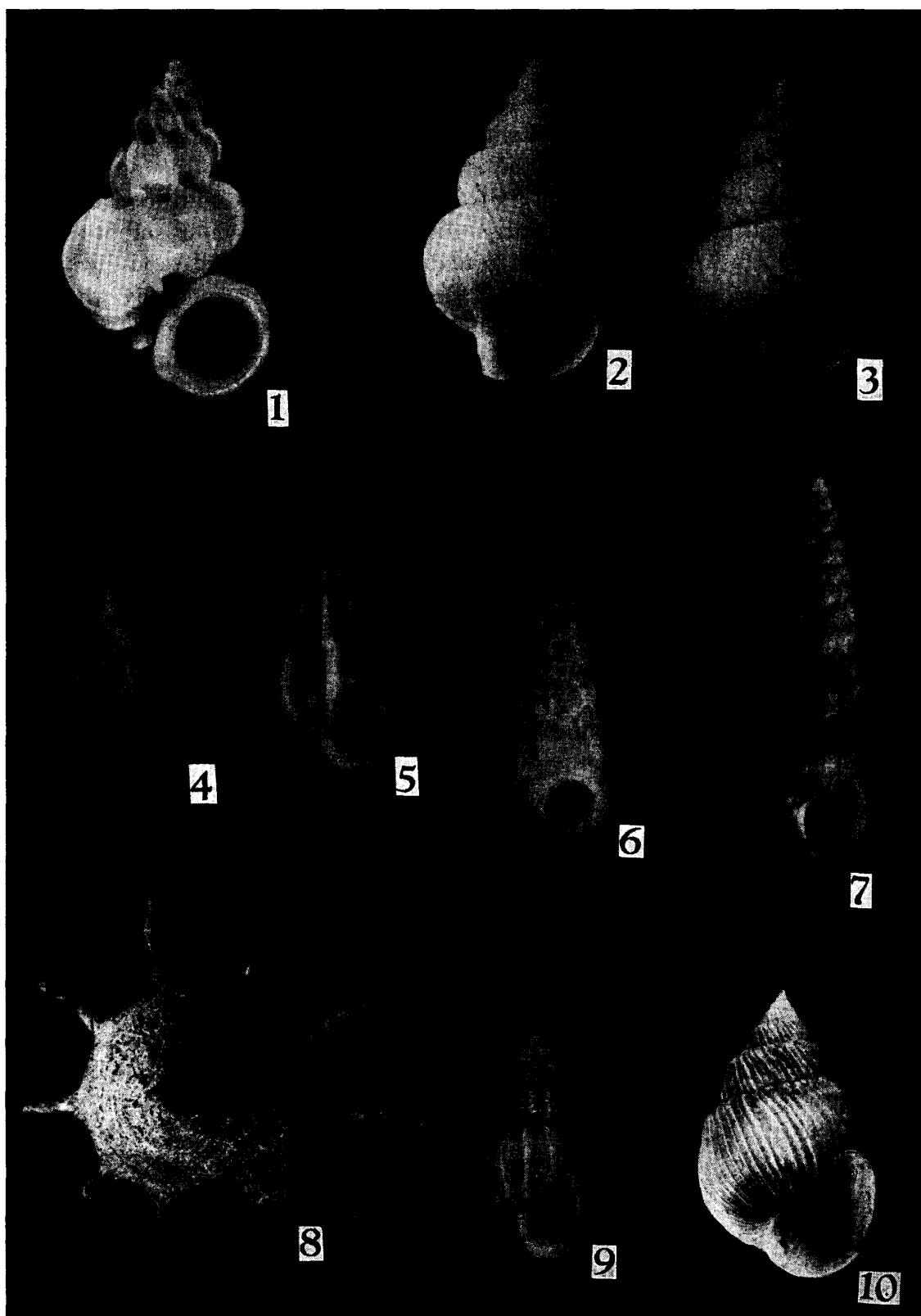
Height 16.9 mm, breadth 5.9 mm and dorso-ventral breadth 4.8 mm (figured holotype specimen preserved in the National Science Museum, NSMT-Mo 52445).

Height 26.5 mm and breadth 7.0 mm and dorso-ventral breadth 6.0 mm (paratype specimen deposited in HAYASHI's collection).

Type-locality. Esuzaki, Wakayama Pref., Honshu, at about 150 m deep.

Remarks. Only five specimens of this interesting species have been collected from the type-locality. *Scala unilateralis* MARTENS, 1902, from the bottom of 805 m deep, Nicobar Islands in the Indian Ocean (7°48'N, 93°7'E) is another member of this genus, but has more numerous costae on the whorls and no strongly margined basal cord on the body whorl. *Scala (Opalia) nierstraszi* SCHEPMAN, 1909, is a quite small immature specimen resembling this genus.

Figs. 1-10. — 1. *Epitonium syoichiroi* sp. nov. (holotype specimen). — 2-3. *Foraceiscala virgo* sp. nov. (paratype specimen). — 3. The same (holotype specimen). — 4. *Graciliscala ishimotoi* sp. nov. (holotype specimen). — 5. The same (paratype specimen). — 6. *Compressiscala japonica* gen. et sp. nov. (holotype specimen). — 7. *Fragilopalina bitaeniata* sp. nov. (holotype specimen). — 8. Undetermined *Epizoanthus* attached to *Guildfordia triumphans* (PHILIPPI), on which *Graciliscala rimbogai* sp. nov. is parasitic. — 9. *Graciliscala rimbogai* sp. nov. (holotype specimen). — 10. *Pupiscala actinario-phila* sp. nov. (holotype specimen).



Foraceiscala virgo sp. nov.

(Figs. 2, 3)

Shell medium in size, thin and fragile, snowy white. Spire elevated pyramidally and with about 10 whorls. Surface with 50–60 weakly lamellate growth riblets all over, which are slightly dilated at the shoulder, crossing the weak spiral threads slightly obliquely set from right to left from the frontal view. Protoconch missing in the examined grown-up specimens, which have three white smooth whorls. Teleoconch whorls 7 in number, well rounded with deep sutures and slightly free from the preceding whorl and connecting them by many riblets. Body whorl large and well rounded at the periphery. Umbilicus narrow but distinctly perforated, partly covered by the reflection of columellar margin. Aperture circular, continuous, thin at the edge. Outer margin roundly arcuate and columellar margin gently curved and reflexed.

Height 22.3 mm and breadth 11.4 mm (figured holotype specimen preserved in the National Science Museum, NSMT–Mo 52446).

Height 24.2 mm and breadth 11.4 mm (paratype specimen, NSMT–Mo 52447).

Type-locality. Off Esuzaki, Wakayama Pref., Honshu, at about 150 m deep.

Remarks. This new species is very close to *Foraceiscala dubia* (SOWERBY, 1844), type-species of this genus, in shape, but has oblique spiral threads on the surface. This is the characteristic feature distinguishing *F. virgo* from other allied species.

Fragilopalina bitaeniata sp. nov.

(Fig. 7)

Shell rather large, thin and fragile, highly turreted with 10 convex whorls, light yellow with two brownish narrow bands on body whorl and one on other whorls except the white protoconch whorls. Surface with many weak spiral striae and distantly placed, slightly lamellate growth lines, which are about 25 in number on the body whorl and penultimate whorls respectively. Body whorl about one-third the shell height, higher than breadth and with a distinct basal disc surrounded by a spiral cord. Aperture ovate in shape and thin at the edge. Outer margin arcuate and columellar margin rather straight, white and thickened. Umbilicus not perforated.

Operculum thin, ovate, light yellow and paucispiral.

Height 27.7 mm and breadth 8.5 mm (figured holotype specimen preserved in the National Science Museum, NSMT–Mo 52448).

Height 30.1 mm and breadth 8.7 mm (paratype specimen preserved in KAWAMURA's collection).

Type-locality. Off Esuzaki, Wakayama Pref., Honshu, at about 150 m deep.

Remarks. This is rather rarely collected from Enshu-Nada, Honshu, to Tosa Bay, Shikoku, at fine sandy bottom of about 100–200 m deep. *Fragilopalina nebulodermata* AZUMA, 1972, type-species of the genus, is closely related to this new species

in shape and coloration, but has decidedly more attenuated shell with about 15 whorls measuring 39.3 mm in height and 9.3 mm in breadth (NSMT-Mo 52449).

Pupiscala actinariophila sp. nov.

(Fig. 10)

Shell small, white, ovate in shape, with a pyramidally elevated spire of 8 whorls. Surface with densely set lamellate growth lines of about 50 in number on the body whorl, and interspaces between each two growth lines crossed by numerous spiral threads. Embryonic whorls white, smooth and polished. Teleoconch whorls slightly shouldered below the sutures and weakly convex. Body whorl large, two-thirds the shell height, gently curved at the periphery and without any basal disc. Umbilicus closed by the dilation of the thick columellar margin. Aperture roundly ovate in shape, outer margin thin and simple, arcuate to well curved basal margin. Operculum thin, ovate, light yellowish brown and paucispiral.

Height 7.4 mm and breadth 4.6 mm (figured holotype specimen preserved in the National Science Museum, NSMT-Mo 52452).

Type-locality. Okinoshima near Cape Ashizuri, Shikoku, at the intertidal rocky shore.

Remarks. This new species had been collected from an undetermined large sea anemone. *Papyriscala yokoyamai* (SUZUKI et ICHIKAWA, 1927) and *P. latifasciata* (SOWERBY, 1874) are superficially allied to this new species in shape, but have colored bands on the whorls, distinctly perforated umbilicus and black colored operculum.

Graciliscala ishimotoi sp. nov.

(Figs. 4, 5)

Shell rather small, thin, but solid, milky white, elongated ovate in shape, with a pyramidally elevated spire of about 9 whorls. Embryonic whorls 2 in number, smooth and polished. Teleoconch whorls convex, divided by constricted sutures and with strong snowy white axial costae of 6–8 in number on each whorl and faint spiral striations on interspaces between each two costae. Body whorl large, a half of shell height, higher than broad, gently curved at the periphery and without any basal disc. Aperture ovate in shape but slightly angular at anterior corner. Outer margin arcuate and columellar margin rather straight and thickened. Umbilicus closed.

Operculum ovate, thin, light yellowish brown, and paucispiral.

Radula ptenoglossate and each tooth narrowly elongate and unicuspidate at the tip.

Height 10.0 mm and breadth 4.3 mm (figured holotype specimen preserved in the National Science Museum, NSMT-Mo 52453).

Height 8.4 mm and breadth 3.8 mm (paratype specimen, NSMT-Mo 52454).

Height 9.0 mm and breadth 4.0 mm (paratype specimen, NSMT-Mo 52455).

Type-locality. Nada, Gobo City, Wakayama Pref., Honshu, at about 30 m deep.

Distribution. Besides the type-locality, Minabe, Wakayama Pref., and Yuigahama, Kamakura City, Kanagawa Pref., Honshu.

Remarks. This new species is parasitic on *Epizoanthus ramosus* CARGREN attached to the surface of *Pterynotus pinnatus* (WOOD, 1815). *Graciliscala angusta* (DUNKER, 1860) is an ally to this new species in shape, but has snowy white solid shell with ovate aperture.

***Graciliscala rimbogai* sp. nov.**

(Fig. 9)

This new species is closely related to the preceding in shape and coloration, but differs from that species in having thinner shell with 10–11 axial costae on each whorl and the aperture ovate in shape and not distinctly angular at the anterior corner.

Height 6.6 mm and breadth 3.0 mm (figured holotype specimen preserved in the National Science Museum, NSMT–Mo 52456).

Height 6.2 mm and breadth 2.6 mm (paratype specimen, NSMT–Mo 52457).

Height 5.9 mm and breadth 2.5 mm (paratype specimen, NSMT–Mo 52458).

Type-locality. Off Minabe, Wakayama Pref., Honshu, at about 50–100 m deep.

Remarks. This new species is parasitic on an undetermined *Epizoanthus* attached to the surface of *Guildfordia triumphans* (PHILIPPI, 1841).

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